What is Claimed is:

1. A method of fabricating microstructures comprising:

impinging a radiation beam through a substrate that is transparent thereto into a radiation sensitive layer on the substrate to image the microstructures in the radiation sensitive layer.

2. A method according to Claim 1 wherein the radiation sensitive layer is a negative photoresist layer such that portions of the negative photoresist layer that are exposed to the radiation beam remain after development.

3. A method according to Claim 2 wherein the negative photoresist layer is thicker than the microstructures and wherein impinging comprises impinging a radiation beam through a substrate that is transparent thereto into a negative photoresist layer on the substrate to image buried microstructures in the negative photoresist layer, adjacent the substrate.

4. A method according to Claim 2 wherein at least some of the microstructures include a base and a top that is narrower than the base and wherein impinging comprises impinging a radiation beam through a substrate that is transparent thereto into a negative photoresist layer on the substrate to image microstructures in the negative photoresist layer with the bases adjacent the substrate and the tops remote from the substrate.

5. A method according to Claim 2 wherein the negative photoresist layer is of variable thickness thereacross, wherein a minimum thickness of the negative photoresist layer is thicker than the microstructures and wherein impinging comprises impinging a radiation beam through a substrate that is transparent thereto into a negative photoresist layer on the substrate to image buried microstructures beneath the negative photoresist layer, adjacent the substrate, that are independent of the variable thickness of the negative photoresist layer.

6. A method according to Claim 2 wherein the negative photoresist layer includes impurities thereon, remote from the substrate, wherein the negative photoresist layer is thicker than the microstructures and wherein impinging comprises

impinging a radiation beam through a substrate that is transparent thereto into a negative photoresist layer on the substrate to image buried microstructures in the negative photoresist layer, adjacent the substrate, that are not distorted by the impurities.

7. A method according to Claim 1 wherein the substrate is a flexible substrate.

8. A method according to Claim 1 wherein the radiation sensitive layer is on a cylindrical platform such that the substrate is on the radiation sensitive layer remote from the cylindrical platform, and wherein impinging comprises:

rotating the cylindrical platform about an axis thereof while simultaneously axially rastering the radiation beam through the substrate across at least a portion of the radiation sensitive layer to image the microstructures in the radiation sensitive layer.

9. A method according to Claim 8 further comprising simultaneously translating the cylindrical platform and/or radiation beam axially relative to one another.

10. A method according to Claim 9 further comprising simultaneously continuously varying amplitude of the radiation beam.

11. A method according to Claim 1 wherein the substrate is at least about one square foot in area.

12. A method according to Claim 1 wherein impinging is performed continuously on the substrate for at least about 1 hour.

13. A method according to Claim 1 wherein impinging is performed continuously on the substrate for at least about 1 hour to fabricate at least about one million microstructures.

14. A method according to Claim 1 wherein the microstructures comprise optical and/or mechanical microstructures.

15. A method according to Claim 1 further comprising:

developing the microstructures that are imaged in the radiation sensitive layer to provide a microstructure master.

16. A method according to Claim 1 wherein the substrate is cylindrical, ellipsoidal or polygonal in shape.

17. A method according to Claim 1 further comprising translating the substrate and/or radiation beam relative to one another while impinging the radiation beam.

18. A method according to Claim 15 further comprising:

forming a plurality of second generation stampers directly from the master; and

forming a plurality of third generation microstructure end products directly from a stamper.

19. A method according to Claim 1 wherein the radiation sensitive layer is on a platform, with a layer between the radiation sensitive layer and the platform, wherein the substrate is on the radiation sensitive layer remote from the platform, and wherein the impinging is followed by:

removing the layer.

20. A method according to Claim 19 wherein removing comprises:

separating the layer from the platform; and

separating the layer from the radiation sensitive layer.

21. A method of fabricating microstructures comprising:

impinging a radiation beam into a negative photoresist layer to image the microstructures in the negative photoresist layer, such that portions of the negative photoresist layer that are exposed to the radiation beam remain after development.

22. A method according to Claim 21 wherein the negative photoresist layer is thicker than the microstructures and wherein impinging comprises impinging a radiation beam into a negative photoresist layer to image buried microstructures in the negative photoresist layer.

23. A method according to Claim 21 wherein the negative photoresist layer is of variable thickness thereacross, wherein a minimum thickness of the negative photoresist layer is thicker than the microstructures and wherein impinging comprises impinging a radiation beam into the negative photoresist layer to image buried microstructures beneath the negative photoresist layer that are independent of the variable thickness of the negative photoresist layer.

24. A method according to Claim 21 wherein the negative photoresist layer includes impurities thereon, wherein the negative photoresist layer is thicker than the microstructures and wherein impinging comprises impinging a radiation beam into the negative photoresist layer on the substrate to image buried microstructures in the negative photoresist layer that are not distorted by the impurities.

25. A method according to Claim 21 wherein the negative photoresist layer is on a cylindrical platform and wherein impinging comprises:

rotating the cylindrical platform about an axis thereof while simultaneously axially rastering the radiation beam across at least a portion of the negative photoresist layer to image the microstructures in the negative photoresist layer.

26. A method according to Claim 25 further comprising simultaneously translating the cylindrical platform and/or radiation beam axially relative to one another.

27. A method according to Claim 26 further comprising simultaneously continuously varying amplitude of the radiation beam.

28. A method according to Claim 21 wherein the negative photoresist layer is at least about one square foot in area.

29. A method according to Claim 21 wherein impinging is performed continuously on the negative photoresist layer for at least about 1 hour.

30. A method according to Claim 21 wherein impinging is performed continuously on the negative photoresist layer for at least about 1 hour to fabricate at least about one million microstructures.

31. A method according to Claim 21 wherein the microstructures comprise optical and/or mechanical microstructures.

32. A method according to Claim 21 wherein the negative photoresist layer is cylindrical, ellipsoidal or polygonal in shape.

33. A method according to Claim 21 further comprising translating the substrate and/or radiation beam relative to one another, while impinging the radiation beam.

34. A method according to Claim 31 further comprising:

developing the microstructures that are imaged in the negative photoresist layer to provide a microstructure master.

35. A method according to Claim 34 further comprising:

forming a plurality of second generation stampers directly from the master; and

forming a plurality of third generation microstructure end products directly from a stamper.

36. A method according to Claim 21 wherein the negative photoresist layer is on a platform, with a layer between the negative photoresist layer and the platform, wherein the substrate is on the negative photoresist layer remote from the platform, and wherein the impinging is followed by:

removing the layer.

37. A method according to Claim 36 wherein removing comprises:

separating the layer from the platform; and

separating the layer from the negative photoresist layer.

38. A method of fabricating microstructures comprising:

impinging a laser beam through a substrate that is transparent thereto into a negative photoresist layer on the substrate to image the microstructures in the negative photoresist layer, wherein at least some of the microstructures include a base adjacent the substrate and a top that is narrower than the base, remote from the substrate.

39. A method according to Claim 38 wherein the substrate is a flexible substrate.

40. A method according to Claim 38 wherein the negative photoresist layer is on a cylindrical platform such that the substrate is on the negative photoresist layer remote from the cylindrical platform, and wherein impinging comprises:

rotating the cylindrical platform about an axis thereof while simultaneously axially rastering the laser beam through the substrate across at least a portion of the negative photoresist layer to image the microstructures in the negative photoresist layer.

41. A method according to Claim 40 further comprising simultaneously translating the cylindrical platform and/or laser beam axially relative to one another.

42. A method according to Claim 41 further comprising simultaneously continuously varying amplitude of the laser beam.

43. A method according to Claim 38 wherein the microstructures comprise optical and/or mechanical microstructures.

44. A method according to Claim 38 further comprising:

developing the microstructures that are imaged in the photoresist layer to provide a microstructure master.

45. A method according to Claim 44 further comprising:

forming a plurality of second generation stampers directly from the master; and

forming a plurality of third generation microstructure end products directly from a stamper.

46. A method according to Claim 40 further comprising a layer between the negative photoresist layer and the cylindrical platform, and wherein the impinging is followed by:

removing the layer.

47. A method according to Claim 46 wherein removing comprises:

separating the layer from the cylindrical platform; and

separating the layer from the negative photoresist layer.

48. A system for fabricating microstructures comprising:

a platform that is configured to hold thereon a radiation sensitive layer that is sensitive to radiation at an imaging frequency and a substrate that is transparent to the imaging frequency; and

a radiation beam system that is configured to impinge a radiation beam at the imaging frequency through the substrate that is transparent thereto into the radiation sensitive layer to image the microstructures in the radiation sensitive layer.

49. A system according to Claim 48 wherein the radiation sensitive layer is a negative photoresist layer such that portions of the negative photoresist layer that are exposed to the radiation beam remain after development.

50. A system according to Claim 49 wherein the negative photoresist layer is thicker than the microstructures and wherein the radiation beam system is configured to impinge the radiation beam through the substrate that is transparent thereto into the negative photoresist layer on the substrate to image buried microstructures in the negative photoresist layer, adjacent the substrate.

51. A system according to Claim 49 wherein at least some of the microstructures include a base and a top that is narrower than the base and wherein the radiation beam system is configured to impinge the radiation beam through the substrate that is transparent thereto into the negative photoresist layer on the substrate to image the microstructures in the negative photoresist layer with the bases adjacent the substrate and the tops remote from the substrate.

52. A system according to Claim 49 wherein the negative photoresist layer is of variable thickness thereacross, wherein a minimum thickness of the negative photoresist layer is thicker than the microstructures and wherein the radiation beam system is configured to impinge the radiation beam through the substrate that is transparent thereto into the negative photoresist layer on the substrate to image buried microstructures beneath the negative photoresist layer, adjacent the substrate, that are independent of the variable thickness of the negative photoresist layer.

53. A system according to Claim 49 wherein the negative photoresist layer includes impurities thereon, remote from the substrate, wherein the negative photoresist layer is thicker than the microstructures and wherein the radiation beam system is configured to impinge the radiation beam through the substrate that is transparent thereto into the negative photoresist layer on the substrate to image buried microstructures in the negative photoresist layer, adjacent the substrate, that are not distorted by the impurities.

54. A system according to Claim 48 wherein the substrate is a flexible substrate.

55. A system according to Claim 48 wherein the platform is a cylindrical platform, and wherein the system further comprises:

a controller that is configured to rotate the cylindrical platform about an axis thereof while simultaneously axially rastering the radiation beam through the substrate across at least a portion of the radiation sensitive layer to image the microstructures in the radiation sensitive layer.

56. A system according to Claim 55 wherein the controller is further configured to simultaneously translate the cylindrical platform and/or radiation beam axially relative to one another.

57. A system according to Claim 56 wherein the controller is further configured to simultaneously continuously vary amplitude of the radiation beam.

58. A system according to Claim 48 wherein the substrate is at least about one square foot in area.

59. A system according to Claim 48 wherein the controller is further configured to impinge the radiation beam continuously on the substrate for at least about 1 hour.

60. A system according to Claim 48 wherein the controller is further configured to impinge the radiation beam continuously on the substrate for at least about 1 hour to fabricate at least about one million microstructures.

61. A system according to Claim 48 wherein the microstructures comprise optical and/or mechanical microstructures.

62. A system according to Claim 48 further comprising:

a developing station that is configured to develop the microstructures that are imaged in the radiation sensitive layer to provide a microstructure master.

63. A system according to Claim 48 wherein the platform is configured to hold the radiation sensitive layer thereon, with a layer between the radiation sensitive layer and the platform.

64. A microstructure product comprising:

a substrate; and

an exposed layer of negative photoresist on the substrate, which is exposed to define therein a plurality of microstructures.

65. A microstructure product according to Claim 64 wherein the negative photoresist is sensitive to radiation at an imaging frequency and wherein the substrate is transparent to the imaging frequency.

66. A microstructure product according to Claim 64 wherein the plurality of microstructures include bases adjacent the substrate and tops remote from the substrate that are narrower than the bases.

67. A microstructure product according to Claim 64 wherein the substrate is a flexible substrate.

68. A microstructure product according to Claim 64 wherein the substrate and the exposed layer of negative photoresist provide a product for an optical microstructure master.

69. A microstructure product according to Claim 64 wherein the plurality of microstructures comprise a plurality of hemispherical sections including bases adjacent the substrate and tops remote from the substrate.

70. A microstructure product according to Claim 64 wherein the substrate is cylindrical, ellipsoidal or polygonal in shape.

71. A microstructure product according to Claim 64 wherein the substrate is at least about one square foot in area.

72. A microstructure product according to Claim 64 wherein the microstructures comprise optical and/or mechanical microstructures.

73. A microstructure product according to Claim 64 wherein the plurality of microstructures comprise at least about one million microstructures.

74. A microstructure product according to Claim 64 further comprising a layer on the exposed layer of negative photoresist, remote from the substrate.

75. A microstructure product comprising:

a substrate; and

an exposed layer of radiation sensitive material on the substrate, which is exposed to define therein a plurality of microstructures, wherein the radiation sensitive material is sensitive to radiation at an imaging frequency and wherein the substrate is transparent to the imaging frequency.

76. A microstructure product according to Claim 75 wherein the plurality of microstructures includes bases adjacent the substrate and tops remote from the substrate that are narrower than the bases.

77. A microstructure product according to Claim 75 wherein the substrate is a flexible substrate.

78. A microstructure product according to Claim 75 wherein the substrate and the exposed layer of radiation sensitive material provide a microstructure master.

79. A microstructure product according to Claim 75 wherein the plurality of microstructures comprise a plurality of hemispherical sections including bases adjacent the substrate and tops remote from the substrate.

80. A microstructure product according to Claim 75 wherein the substrate is at least about one square foot in area.

81. A microstructure product according to Claim 75 wherein the plurality of microstructures comprise at least about one million microstructures.

82. A microstructure product according to Claim 75 wherein the plurality of microstructures comprise optical and/or mechanical microstructures.

83. A microstructure product according to Claim 75 wherein the substrate is cylindrical, ellipsoidal or polygonal in shape.

84. A microstructure product according to Claim 75 further comprising a layer on the exposed layer of radiation sensitive material, remote from the substrate.

85. A microstructure product comprising:

a substrate; and

a patterned layer of negative photoresist on the substrate, which is patterned to define therein a plurality of microstructures.

86. A microstructure product according to Claim 85 wherein the negative photoresist is sensitive to radiation at an imaging frequency and wherein the substrate is transparent to the imaging frequency.

87. A microstructure product according to Claim 85 wherein the plurality of microstructures include bases adjacent the substrate and tops remote from the substrate that are narrower than the bases.

88. A microstructure product according to Claim 85 wherein the substrate is a flexible substrate.

89. A microstructure product according to Claim 85 wherein the substrate and the patterned layer of negative photoresist provide a microstructure master.

90. A microstructure product according to Claim 85 wherein the microstructures comprise a plurality of hemispherical sections including bases adjacent the substrate and tops remote from the substrate.

91. A microstructure product according to Claim 85 wherein the substrate is cylindrical, ellipsoidal or polygonal in shape.

92. A microstructure product according to Claim 85 wherein the substrate is at least about one square foot in area.

93. A microstructure product according to Claim 85 wherein the microstructures comprise optical and/or mechanical microstructures.

94. A microstructure product according to Claim 85 wherein the plurality of microstructures comprise at least about one million microstructures.

95. A microstructure product according to Claim 85 further comprising a layer on the patterned layer of negative photoresist, remote from the substrate.

96. A microstructure product comprising:

a substrate; and

a patterned layer of radiation sensitive material on the substrate, which is patterned to define therein a plurality of microstructures, wherein the radiation sensitive material is sensitive to radiation at an imaging frequency and wherein the substrate is transparent to the imaging frequency.

97. A microstructure product according to Claim 96 wherein the plurality of microstructures include bases adjacent the substrate and tops remote from the substrate that are narrower than the bases.

98. A microstructure product according to Claim 96 wherein the substrate is a flexible substrate.

99. A microstructure product according to Claim 96 wherein the substrate and the patterned layer of radiation sensitive material provide a microstructure master.

100. A microstructure product according to Claim 96 wherein the microstructures comprise a plurality of hemispherical sections including bases adjacent the substrate and tops remote from the substrate.

101. A microstructure product according to Claim 96 wherein the substrate is at least about one square foot in area.

102. A microstructure product according to Claim 96 wherein the plurality of microstructures comprise at least about one million microstructures.

103. A microstructure product according to Claim 96 wherein the microstructures comprise optical and/or mechanical microstructures.

104. A microstructure product according to Claim 96 wherein the substrate is cylindrical, ellipsoidal or polygonal in shape.

105. A microstructure product according to Claim 96 wherein the plurality of microstructures comprise at least about one million microstructures.